

TORQUE RIPPLE AND NOISE REDUCTION BY AVOIDING MECHANICAL RESONANCE FOR AN ELECTRIC MACHINE

ABSTRACT OF THE DISCLOSURE

A method of reducing torque ripple and noise for an brushless DC machine comprising: determining a control frequency for the electric machine, the control frequency indicative of an existing current command to and a rotational velocity of the electric machine; multiplying the control frequency by a selected multiple and forming a modulating signal responsive thereto; and formulating a modified command profile. The method also includes: correlating and synchronizing the modified command profile with the existing current command and a rotor position for the electric machine; and generating a modulated current command to the electric machine.